

USSR/Electronics - Radio

Card : 1/1

Authors : Kopytin, L. A., Vice Administrator of the Scientific Research  
Institute of the Ministry of Communications

Title : Improving transmitting devices.

Periodical : Vest. Svyaz, 5, 3 - 5, May 1954

Abstract : Some unsatisfactory conditions at central broadcasting stations are  
pointed out and a plea is made to radio-engineers to design circuits  
that will insure safety to the working personnel. Circuits for  
broadcasting apparatuses, which would give continuous broadcasting,  
and a tube air-cooling system are described.

Institution : ....

Submitted : ....

KOPYTIN, L. A.

USSR/Electronics - Communications

Card 1/1      Pub. 133 - 3/16

Authors      : Kopytin, L. A.

Title        : Some urgent problems in the development and introduction of new radio techniques

Periodical   : Vest. svyazi 5, 547, May 1955

Abstract     : Trends in research and development of communications, as well as the introduction of new radio techniques and the establishment of radio relay stations throughout the new regions of the USSR, are briefly discussed and summarized in order to explain some of the problems with which the communication industry is faced.

Institution :.....

Submitted   :.....

Translation M-1320, 19 Nov 56

KOPYTIN, L.A., inzhener, laureat Stalinskoy premii.

~~SECRET~~  
Important tasks in automatizing means of radio transmission.  
Vest. svyazi 15 no.11:3-5 N '55. (MIRA 9:2)  
(Radio--Transmitters and transmission)

Translation M-1263, 5 Oct 56

KOPYTIN, L.A., inzhener.

Radio relay lines with great distances between amplifier sub-  
stations. Vest. aviatsi 16 no.9:5-6 S '56. (MLRA 9:11)  
(Radio relay systems)

KOPYTIN, L. A.

STATIONS & COMMUNICATION SYSTEMS

"Modern Trends in the Development of Shortwave Radio Communication,"  
by L. A. Kopytin, Deputy Chief of the Scientific Research Institute  
of the Ministry of Communication, U.S.S.R., Vestnik Svyazi, No 5,  
May 1957, pp 8-11.

Brief discussion of the fundamental trends followed in the design  
of modern shortwave radio stations and in the development of new types  
of equipment for telephony and telegraphy. Comparison between Soviet  
and western equipment is frequently indicated.

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KOPYTIN, L. A.

AUTHOR

"APPROVED FOR RELEASE: 03/13/2001

CIA-RDP86-00513R000824520020

TITLE:

[Transactions of the] Conference on the Occasion of the 40th  
Anniversary of the Nizhniy-Novgorod Radio Laboratory imeni  
V.I. Lenin (Konferentsiya, posvyashchennaya sorokaletiyu Ni-  
zhegorodskoy radiolaboratorii imeni V.I. Lenina)

PERIODICAL:

Radiotekhnika, 1958, Vol. 13, Nr 8, pp. 71-79 (USSR)

ABSTRACT:

From May 22-24, a conference took place at Gorkiy which had  
been organized by the Gor'kiy Branch of the Scientific and  
Technical Society for Radio Engineering and Electric Tele-  
communication Service imeni A. S. Popov. The conference was  
attended by: B. A. Ostroumov, A. M. Kugushev, A. A. Pistol'kors,  
N. A. Nikitin, G. A. Ostroumov, V. P. Yakovlev, V. K. Ge, N. N.  
Pal'mov, F. A. Lbov, A. S. Nikolayenko, I. P. Koterov, S. I.  
Morugina, Ye. S. Sorokin et al. as well as by a group of former  
collaborators of the Tver' radiostation. A. M. Kugushev spoke  
about "The Nizhniy-Novgorod Radio Laboratory imeni V. I. Lenin,  
L. A. Kopytin on the development of the technique in radio  
engineering, the establishment of radio communication facilities  
and television apparatus. A. I. Shokin spoke about the developmat  
of the Soviet radio-engineering industry during the past 40

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6(4)

AUTHOR:

SOV/111-59-3-5/26

Kopytin, L.A., Deputy Chief, Stalin Prize Laureate

TITLE:

On the Problems of the Development of Radio Engineering in the Light of the Latest Achievements of Science  
(O problemakh razvitiya tekhniki radio v svete noveyshikh dostizheniy nauki)

PERIODICAL:

Vestnik svyazi, 1959, Nr 3, pp 5-7 (USSR)

ABSTRACT:

The article deals generally with a number of primarily technical problems, connected with the development of communications facilities in the USSR, and the need for an intensive, cooperative research program in all branches of science and engineering in order to solve them. The author concentrates chiefly on two broad categories, communications and relay lines, and broadcasting and relay of TV programs, treating more specific questions of importance under these headings. He states that the demand for an ever greater number of communications channels, in connection with the overall development of the whole economy, will increase greatly during the coming 7

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On the Problems of the Development of Radio Engineering in the  
Light of the Latest Achievements of Science

year period, making further improvement and development of multi-channel trunk lines a most important problem. Attention is to be focused on coaxial and radio-relay lines. The author deals at length with the problems of improving and modernizing radio-relay lines, 3 types of which are in use. The first and most widely used employs a series of repeating stations at 50-60 km intervals. Possible improvements in travelling-wave tubes, used in r-r apparatus, and considered inadequate, are discussed, as is the possibility of replacing amplifier tubes with high-stability, noiseless molecular amplifiers, based on molecular exciters, theory and operation of which is described in some detail. Simplification of antenna-waveguide equipment, and the maintenance and control processes are problems closer to solution. The prospects of using solar batteries in sunny areas is noted. The 2nd type of line has

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fewer repeating stations, at 200-300 km intervals, operates on longer wavelengths, and is capable of carrying large numbers of telephone calls, or TV programs. Recently mobile installations, permitting rapid establishment of communications over 100-200 km distances - e.g. for TV reporting - have been in use. The 3rd type, exploiting ionospheric dispersion, is a narrow band system, capable presently of carrying only 4-5 telegraph messages, or a single phone call. A voice compression device "vokoder" is now under development, which would allow up to 10 phone calls (each 300 cps wide) in a standard 3400 cps channel. Another system for possible doubling the capacity of existing telephone channels, based on the fact that a channel in use is silent up to 50% of the time, will switch a person, speaking at any given moment, to whichever channel is then "free". The use of artificial earth satellites ("sput-

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niki") is not overlooked as a possibility in radio-relay communications. A system of side-band transmission, presently being planned, is described. Two chief problems in television are recording of TV programs, and transmission of the sound channel simultaneously in several languages, so that various national groups in the USSR can enjoy the same program. Moreover, it is added, future televisions should have provision for receiving the sound for any program in a choice of languages. Much work remains to be done on color TV; the system to be introduced will be compatible, although the possibility of using other systems will not be ignored. Methods for realizing long-distance transmission of TV programs are discussed. The use of an earth satellite as a TV relay is proposed. A satellite at an altitude of 37,000 km, rotating with the earth,

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will remain stationary with respect to the earth,  
and could, therefore, continuously serve an enormous  
land area. Airplanes are still another possibility.  
UHF FM broadcasting equipment is simultaneously being  
installed in all TV centers.

ASSOCIATION: NII ministerstva svyazi SSSR (NII of the Ministry of  
Communications of the USSR)

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SOV/111-59-5-10/32

AUTHOR: Kopytin, L.A., Engineer, Stalin Prize Laureate  
TITLE: The Wireless Spark Telegraph  
PERIODICAL: Vestnik svyazi, 1959, Nr 5, pp 11-13 (USSR)  
ABSTRACT: The author reviews the history of the spark telegraph and points out that A.S. Popov's merits in developing the latter are not yet being fully emphasized in their full extent. For this reason, he covers the work of A.S. Popov in this field in detail. There are 4 photographs.

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6 (o)

SOV/111-59-10-4/23

AUTHOR: Kopytin, L.A., Deputy Chief, Stalin Prize Winner

TITLE: The Most Important Trends in the Work of the NII of the Ministry of Communications of the USSR in the Fields of Radio Communications and Television

PERIODICAL: Vestnik svyazi, 1959, Nr 10, pp 7-8 (USSR)

ABSTRACT: This article deals with the work of the Nauchno-issledovatel'skiy institut (NII) ministerstva svyazi SSSR (Scientific-Research Institute of the Ministry of Communications of the USSR) in the fields of radio communications and television in the near future, particularly in connection with the seven-year plan. By way of introduction the author briefly discusses the work of scientific-research collectives in the light of the decisions of the June Plenary Session of the Central Committee of the Communist Party of the Soviet Union. Expansion of trunk line facilities is treated, especially with regard to systems for exploiting ionospheric and tropospheric characteristics, about which new information has recently been made available. A basic requirement for new systems is broad band-

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The Most Important Trends in the Work of the NII of the Ministry of Communications of the USSR in the Fields of Radio Communications and Television

width permitting simultaneous transmission of TV program material and large numbers of telephone conversations. Two systems are referred to: one involving storage of information for subsequent transmission at a more favorable time, and a spectrum compression system. The role of computers and programming devices in improving communications facilities is also outlined; for example, states the author, in NII designed equipment for automation of short wave links, using such devices, in which automatic selection of the best transmission conditions and frequency for a given time duration is proposed; this will be especially important in using a new multiplexing apparatus, developed by the NII, allowing a considerable increase in the volume of information sent through a single radio channel at favorable times. A new apparatus equipped with a device for automatic correction of mistakes is also mentioned, as is the need for apparatus for short wave communications links permitting more productive uti-

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The Most Important Trends in the Work of the NII of the Ministry of Communications of the USSR in the Fields of Radio Communications and Television

lization of transmitting and receiving equipment. The discussion of radio communications facilities is concluded with a note on the replacement of mechanical systems by electronic ones, and transistorization. Work in the field of color TV is discussed. Reference is made to a full set of color TV equipment on demonstration at the Exposition of Achievements in the National Economy, and a portable three-tube camera, equipment for amplification, coding and decoding of signals, and a three-kinescope receiver designed by the NII. Two models of a color TV projection type receiver, one with a 1.2 x 0.9 m screen, and one with a translucent screen, are briefly described. The first samples of the "Izumrud" projection type receiver, based on the NII design, have been put out by one of the Moscow Sovnarkhoz works. Experimental color TV transmission was started in July from the Moscow Telecentre which is equipped with apparatus designed by institutes of the Gosudarstvennyy komitet soveta ministrov

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The Most Important Trends in the Work of the NII of the Ministry of Communications of the USSR in the Fields of Radio Communication and Television

SSSR-po radioelektronike (State Committee of the Council of Ministers of the USSR on Radio Electronics); incorporating several designs of institutes of the Ministry of Communications of the USSR. The NII of the Ministry of Communications is presently studying the problem of organizing color TV broadcasts for the public; use of radio-relay lines with "Vesna" and R-60/120 equipment is contemplated, and an experimental relay line is under construction; similar work will be done on coaxial cable lines. Adaptation of standard black and white image transmitting equipment for broadcasting color programs is under study at the Moscow Telecenter; this method will also be applied in other cities. In conclusion the author mentions the future application of color TV projection in cinemas, and the need for supplying sound gage (e.g. for transmission to the national republics).

ASSOCIATION: Nauchno-issledovatel'skiy institut ministerstva svyazi  
SSSR (Scientific-Research Institute of the Ministry of  
Card 4/4 Communications of the USSR)

KOPYTIN, L.A., inzh.

Administrative radio conference in Geneva. Vest. sviazi 20 no.8:  
28-30 Ag'60. (MIRA 13:10)  
(Radio--Congresses)



21.1330  
26.2230

S/089/60/009/006/011/011  
B102/B212

AUTHORS: Akhachinskiy, V. V., Kopytin, L. M.

TITLE: Heat of formation of  $\text{PuBe}_{13}$

PERIODICAL: Atomnaya energiya, v. 9, no. 6, 1960, 504-505

TEXT: There are no data available in publications on the formation heats of intermetallic compounds of plutonium. The authors have determined it for  $\text{PuBe}_{13}$  and report on it in this paper. It was determined by

measuring the solution heat of  $\text{PuBe}_{13}$  and its components in 19% hydro-chloric acid in a microcalorimeter having an isothermal jacket (cf. Fig.).  
The calorimeter can consisted of two containers, an inner one made of tantalum and an outer one made of copper; between these two containers, the heater made of manganin wire (80 ohms) was located together with a paraffin layer. A copper resistance thermometer was mounted outside the calorimeter, which was connected via a bridge circuit to a mirror galvanometer (sensitivity 0.00003° per mm on the scale). The water equivalent of the calorimeter was 35 cal/deg and the cooling constant

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Heat of formation of  $\text{PuBe}_{13}$

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$3 \cdot 10^{-4} \text{ sec}^{-1}$ . The water temperature in the casing was kept at  $25^{\circ}\text{C} \pm 0.001^{\circ}$ . All measurements were done as carefully and accurately as possible. The correction for the heat exchange has been calculated and taken into account. The hydrogen released in the reaction has been measured (and all necessary corrections were made), which made it possible to determine the chemical composition and phase composition of each dissolved weighed sample of the alloy by using the known Pu-Be phase diagram. The phase composition was calculated from the equation  $x+y=1$ ,  $138.80 x + 908.26 y = v$ , where  $x$  and  $y$  represent the amount of Pu and  $\text{PuBe}_{13}$ , respectively, per gram of alloy; the numerical factors denote the amounts of hydrogen which were released by dissolution of 1 g Pu and 1 g  $\text{PuBe}_{13}$ ;  $v$  denotes the amount of hydrogen (in  $\text{cm}^3$ ) which was released by dissolution of 1 g alloy. The Be and Pu used had a purity of 99.15% with less than 0.2% impurities.  $\text{PuBe}_{13}$  was obtained by fusing metallic Pu and Be powder in a high-frequency furnace (in a BeO container and Ar atmosphere). The lattice constant of the product obtained was determined to be  $a = 10.259 \pm 0.001 \text{ kX}$ , and its microhardness was

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Heat of formation of PuBe<sub>13</sub>.

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1045 kg/mm<sup>2</sup>. The phase analysis furnished compositions between 92.17% by weight of PuBe<sub>13</sub> + 7.83% by weight of Pu and 89.78% by weight of PuBe<sub>13</sub> + 10.22% by weight of Pu. The solution heat of PuBe<sub>13</sub> was calculated separately for each weighed sample, taking the phase composition into account. The following results have been obtained:

Dissolved substance	number of tests	H <sub>2</sub> released per g, cm <sup>3</sup>	solution heat ΔH, kcal/mole
Cu	6	2477.8 ± 0.67	89.38 ± 0.06
Be	4	138.8 ± 0.13	141.02 ± 0.19
alloy	5	from 830 to 848	1267.2 ± 2.3

From these data, the formation heat of PuBe<sub>13</sub> has been determined by

employing Hess' law, and the following result has been obtained:

$\Delta H_{298}^0 = 35.7 \pm 3.4$  kcal/mole. The authors thank Ye. S. Smotritskaya,

A. N. Yelistratova, and M. I. Ivanov for help and suggestions. There are 1 figure, 1 table, and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc.

SUBMITTED: July 5, 1960  
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Heat of formation of  $\text{PuBe}_{13}$

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Legend to the figure: 1) Casing of the calorimeter; 2) thermistor;  
3) Beckmann thermometer; 4) housing; 5) calorimeter can; 6) flask with the  
substance to be investigated; 7) impellers; 8) calorimeter cover;  
9) ebonite sleeve pipe; 10) tube; 11) felt interlayer; 12) copper sleeve;  
13) outlet tube; 14) cover nut; 15) spring; 16) Warren drive; 17) stirrer  
axis; 18) tube connecting the calorimeter with a gas burette; 19) casing  
heater; 20) casing cover; 21) mixer.

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S/089/61/010/003/005/021  
B108/B209

24.6P20

AUTHORS: Kopytin, L. M., Gagarinskii, Yu. V.

TITLE: Influence of radioactivity of substances upon their physical and chemical properties

PERIODICAL: Atomnaya energiya, v. 10, no. 3, 1961, 238-243

TEXT: In consequence of continuous self-irradiation, radioactive substances are expected to display properties that are somewhat different from those of inactive materials. Alpha decay leads to local temperature peaks; in beta decay, some of the particles (molecules, atoms, ions) with increased energy exceed equilibrium in such systems. This causes an enhanced vapor pressure. Fig. 1 shows an idealized vapor pressure versus composition diagram for a system of two components, A and B, where B is radioactive. The radioactivity of B will raise the normal vapor pressure of both components by  $\Delta P = \Delta P_A + \Delta P_B$ , where  $\Delta P_B$  denotes the change in partial vapor pressure of B due to self-irradiation. When the number of molecules evaporating due to self-irradiation is taken

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to be proportional to the molar fractions of A and B, the expression  

$$\frac{\Delta P_A}{\Delta P_B} = \frac{N_A}{N_B}$$
 is obtained. On the assumption that the total number of molecules vaporized during one decay event does not depend on the composition,  $\Delta P = \Delta P_B^0 N_B$  ( $\Delta P_B^0$  - increase in vapor pressure of B due to self-irradiation). Basing on these considerations one obtains the expression  $P = P_A^0 + (P_B^0 - P_A^0 + \Delta P_B^0) N_B$  for the resulting vapor pressure.  $P_A^0$  and  $P_B^0$  denote the vapor pressure of the pure, inactive components A and B. The vapor pressures of both components deviate from linearity (Fig. 1), but this with opposite signs, so that the sum remains linear. A slight diversity of the partition coefficients in distillation is also found if one of the components in the above system is radioactive:  

$$\alpha = \frac{P_A^0 + \Delta P_B^0 N_B}{P_B^0 + \Delta P_B^0 N_B}$$
 The three hydrogen isotopes H, D, and T are discussed as

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to their vapor pressure. Here, the authors refer to various publications (e.g., Ref. 10: A. Price, Nature, 181, 268 (1958)). The effect of self-irradiation becomes particularly manifest in the case of  $\text{Po}^{210}$  (alpha emitter, half-life 138.4 d) through the latter's relatively low boiling point as compared to other elements of the principal subgroup of the sixth group in the periodic system. The heat of evaporation calculated from the temperature dependence of the vapor pressure must be lower for radioactive substances. X-Ray analysis of heated and cooled polonium samples showed that the alpha and beta phases may co-exist between 0 and 75°C. In fact, if the sample consists of particles of various size, and if conversion entropy is low and interfacial energy high, such a sample may have, not a point, but a band of conversion. It is, however, known that metal layers vaporized in vacuo only consist of particles of equal size. Thus, the most plausible explanation of the co-existence of the two phases over a wide temperature range is the effect of self-irradiation which increases the number of structural defects in regions passing through a temperature peak. This effect leads to a metastable state of these regions. Curves 1 and 2 in Fig. 2

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illustrate the temperature dependence of the free energy of the alpha and the beta phase, respectively. The above-mentioned regions may decrease their energy either by migration and recombination or by gradual conversion of the deformed alpha phase into the beta phase. Instead of a melting point, radioactive substances have a wide interval of liquid-solid state. Moreover, it is stated that the concentration of lattice defects in plutonium also depends on the history of the material. The authors thank A. A. Bochvar for perusing the paper and for valuable remarks. There are 2 figures and 31 references: 9 Soviet-bloc and 22 non-Soviet-bloc.

SUBMITTED: July 21, 1960

Card 4/6

AKHACHINSKIY, V.V., KOPYTIN, L.M., IVANOV, M.I., AND PODOLSKAYA, N.S.

"Heats of formation of intermetallic compounds of Pu with Al and Fe, U with Fe."

Report submitted to the IAEA Symposium on the Thermodynamics of Nuclear  
Materials.  
Vienna, Austria 21-26 May 1962

KOPYTOV, I.N., dokl. tekhn. nauk

Reducing the coefficient of edge friction for the purpose of  
glass protection from the formation of dangerous surface defects.  
Stek. i ker. 22 no.9:24-25 S '65. (MIRA 18:9)

1. Moskovskiy stanko-Instrumental'nyy institut.

SOV/58-59-12-26888

Translation from: Referativnyy zhurnal, Fizika, 1959, Nr 12, p 55 (USSR)

AUTHORS: Batalin, V.A., Kopytin, N.S., Kryshtab, G.S., Pasechkin, M.V.,  
Strizhak, V.I.

TITLE: On the Transverse Cross-Sections of Non-elastic Scattering of  
Fast Neutrons 79

PERIODICAL: Tr. Sessii AS UkrSSR po mirn. ispol'zovaniyu atomn. energii.  
Kiyev, AS UkrSSR, 1958, pp 102 - 106

ABSTRACT: The cross-section of a non-elastic scattering of 2.5, 3.3 and  
4.1 Mev neutrons from medium and heavy nuclei (from Na to Bi)  
was measured by the transmission through thin spherical layers  
method. The  $D(d,n)He^3$  reaction served as the neutron source,  
a low-voltage accelerator and an electrostatic generator were  
used to accelerate the deuterons.  $p^{31}$ ,  $Ar^{27}$  and  $S^{32}$  were used  
as neutron detectors, since the threshold of (n,p) reactions  
with them is near the energy of the source neutrons. It is  
established that the cross-sections of non-elastic scattering of  
neutrons increase smoothly for all nuclei, except "magic" ones,

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On the Transverse Cross-Sections of Non-Elastic Scattering of Fast Neutrons

at 2.5 to 4.1 Mev, with an increase in the atomic number. In the case of  
"magic" nuclei, the non-elastic scattering cross-section is considerably less  
than those of the nearby nuclei. Considerable anomalies are observed in the  
cross-sections of non-elastic scattering in heavy nuclei, which decrease with  
an increase in the neutron energy.

I.P. Sadikov



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BATALIN, V.A. [Batalin, V.O.]; KOPYTIN, N.S. [Kopytin, M.S.]

Inelastic scattering cross sections of 3,6 Me neutrons scattered  
by atomic nuclei. [in Ukrainian with summary in English]. Ukr. fis.  
zhur. 3 no.2:185-189 Mr-Apr '58. (MIRA 11:6)

1. Institut fiziki AN URSR.  
(Neutrons--Scattering) (Nuclei, Atomic)

KORZH, I.A. [Korzh, I.O.]; KOPYTIN, N.S. [Kopytin, M.S.]; PASECHNIK, M.V.  
[Pasichnyk, M.V.]; PRAVDIVYY, N.M. [Pravdyvyi, M.M.];  
SKLYAR, N.T. [Skliar, M.T.]; TOTSKIY, I.A. [Tots'kyi, I.A.]

Elastic scattering of 0.65 Mev. neutrons by atomic nuclei. Ukr.  
fiz. zhur. 8 no.12:1323-1327 D '63. (MIRA 17:4)

1. Institut fiziki AN UkrSSR, Kiyev.

ACCESSION NR: AP4020339

S/0089/64/016/003/0260/0262

AUTHOR: Korzh, I. A.; Kopytin, M. S.; Pasechnik, M. V.; Pravdivy, N. M.;  
Sklyar, N. T.; Totksiy, I. A.

TITLE: Scattering of neutrons with energies of 0.5 and 0.8 Mev. in light and  
intermediate nuclei

SOURCE: Atomnaya energiya, v. 16, no. 3, 1964, 260-262

TOPIC TAGS: neutron scattering, light nucleus, intermediate nucleus, threshold  
detector, anisotropy, neutron C, Na, Mg, Al, Ni, Cu, Se, Te

ABSTRACT: Measurements of angular distributions of elastically scattered  
neutrons with energies of 0.5 and 0.8 Mev. in light and intermediate nuclei (C,  
Na, Mg, Al, Ni, Cu, Se, Te) were completed in 1959 by a method described by  
M. V. Pasechnik, ("Atomnaya energiya", 16, 1964, 207). A detector was selected  
as threshold in order to prevent the recording of nonelastic scattered neutrons.  
Taking this threshold into account, the scattering of neutron energy was  $\pm 50$   
kev. for both neutron energies so that the results regarding resonances for all  
tested nuclei may be considered as average. Measurements were conducted for 8

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NEPOMYASHCHIY, A.; KOPYTIN, P.F., redaktor; LEVONEVSKAYA, L.G., tekhnicheskiy  
redaktor

[ Contribution from the "Elektrik" plant workers] Vklad trudiashchi-  
khsia zavoda "Elektrik." [Leningrad] Leningradskoe gazetno-zhurnal'-  
noe i knizhnoe izd-vo, 1952. 61 p. [Microfilm] (MIRA 9:3)  
(Leningrad--Electric machinery)



KOPYTIN, P.F., red.; SLEPYAN, Yu.F., tekhn.red.

[Technical schools in Leningrad; a guide for students entering in 1954] Tekhnikumy Leningrada; spravochnik dlia postupaiushchikh v 1954 godu. Leningrad, Leningr. gazetno-zhurnal'noe i knizhnoe izd-vo, 1954. 155 p.

(MIRA 13:2)

(Leningrad--Technical education)

KOPYTIN, P.I., inzh.

Rolling of a new snap ring section for 8.5B-20 wheels on a continuous mill. Stal' 21 no.5:425-428 My '61. (MIRA 14:5)

1. Chelyabinskiy metallurgicheskiy zavod.  
(Rolling (Metalwork))

KHOROSH, V.A.; BOYKO, M.Ye.; KOSSOVSKIY, L.D.; SHVIREV, M.S.; KOPYTIN, P.I.;  
RUSANOV, I.I.; Primali uchastiye: KOVTUNOVICH, V.A.; KUKSHKINA, M.Ye.;  
RYAZANOVA, A.P.; VISKUNOVA, T.Ya.; MUKHINA, M.A.

Determining the optimal conditions for blooming mill operations. Stal'  
23 no.4:338-340 Ap. '63. (MIRA 16:4)

1. Chelyabinskiy metallurgicheskiy zavod.  
(Rolling mills)

KOPYTIN, V.

More attention to wages. Sov.profssoiuzy 5 no.7:67-68 J1 '57.  
(MLRA 10:8)

1. Starshiy inspektor Gosudarstvennogo komiteta Soveta Ministrov SSSR  
po voprosam truda i zarabotnoy platy.  
(Fisheries) (Wages)

LUKASHIN, Z.; KOPYTIM, V.; RAPPAY, V.

New regulation on the revised norm in operation. Sots. trud no.12:  
84-90 D '57. (MIRA 11:1)

(Production standards)

KOPYTIN, V.

Shortcomings in the wages of seagoing personnel of the fishing industry on Sakhalin. Sots. trud. no.10:62-66 0 '56. (MIRA 9:11)  
(Sakhalin--Fisheries) (Wages)

KOPYTIN, V.

Wage regulation for workers of whale, crab, and animal hunting  
flotillas of the Far East. Sots.trud no.12:70-73 D '58.  
(MIRA 13:4)

(Soviet Far East--Wages)

KOPYTIN, V.; RAPPAY, V.

Regulating wages in the fishing industry. Sots.trud 5 no.1:63-69  
Ja '60. (MIRA 13:6)  
(Fisheries) (Wages)



KOPYTIN, V.; KHASKIN, G.

Introduce technical standards in fishing industry enterprises.  
Sots.trud 5 no.3:71-75 Mr '60. (MIRA 13:6)  
(Fisheries--Production standards)

BABKIN, P.V.; KOPYTIN, V.I.

Geological and mineralogical characteristics of mercury deposits  
in the Chukchi National Area. Sov. geol. 4 no.8:109-113 Ag '61.  
(MIRA 16:7)

1. Severo-Vostochnoye geologicheskoye upravleniye.  
(Chukchi National Area—Mercury ores)

KOPYTIN, V.M.; DERYABINA, V.M.

Importance of the temperature factor in drinking mineral waters.  
Vop. kur., fizioter. i lech. fiz. kul't. 24 no.6:521-524 N-D '59.  
(MIRA 15:1)

1. Iz otdela eksperimental'noy bal'neologii (zav. -- doktor med.  
nauk A.K.Pislegin) Bal'neologicheskogo instituta na Kavkazskikh  
Mineral'nykh Vodakh (dir. -- dotsent I.S.Savoshchenko).  
(MINERAL WATERS)

KOPYTIN, V.T.; MOLOSTVOV, Ye.V.

Norms for the number of workers in the starch, carbon dioxide, biomycin and amylase production in distilleries. Ferm. i spirt. prom. 31 no.3:27-30 '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fermentnoy i spirtovoy promyshlennosti.

FROLOVA, A.N.; KOPYTINA, M.G.

Changing the shape of the internal back belt in chrome-leather boots  
with teased tops. Za indus.Riaz. no.2:60 D '61. (MIRA 16:10)

GURDZHI, Ye.S.; ROZENBLYUM, N.I.; KOPYTINA, M.S.; KHARITONOVA, G.N.;  
NIKONOVA, V.B.; SABUROVA, A.V.

The "PPK-1" preparation composition for the formation of  
nylon fibers. Khim. volok. no.2:60-61 '65. (MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo  
volokna (for Gurdzhi, Rozenblyum, Kopytina). 2. Klinskiy kombinat  
(for Kharitonova, Nikonova). 3. VNIISV (for Saburova).

GODNEV, Ivan Nikolayevich; KOPYTINA, M.V., redaktor; TUMARKINA, N.A.,  
tekhnicheskiy redaktor.

[Computing thermodynamic functions from molecular data] Vychisleniye  
termodynamicheskikh funktsii po molekuliarnym dannym. Moskva, Gos.  
izd-vo tekhniko-teoret. lit-ry, 1956. 419 p. (MLBA 9:5)  
(Thermodynamics)

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9.4300 (and 1043, 1155)

S/181/61/003/002/011/050  
B102/B204

AUTHORS: Butusov, Yu. M. and Kopytina, M. V.

TITLE: Proof of the band theory

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 395-397

TEXT: The problem of the system of  $N$  interacting conduction electrons in a crystal is dealt with in the following manner in the band theory:

The exact Schrödinger equation 
$$\left( \sum_{i=1}^N \frac{\vec{p}_i^2}{2m} + \sum_{i=1}^N V_i + \sum_{i>j=1}^N v_{ij} \right) \Psi = E \Psi \quad (1)$$

is replaced by the approximation 
$$\left( \sum_{i=1}^N \frac{\vec{p}_i^2}{2m} + \sum_{i=1}^N V_i + \sum_{i>j=1}^N u_{ij} \right) \Phi = E \Phi \quad (2),$$

where the interaction potential  $u_{ij}$  is assumed to be weak ( $V_i$  - periodical lattice potential for the  $i$ -th electron,  $v_{ij}$  - interaction potential between the  $i$ -th and  $j$ -th electron). One then goes over to a system of

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free electrons, in which each electron is in the periodic field of the lattice and in the averaged field of the other electrons. On the one hand, it is now inadmissible to neglect the interaction between the electrons (which has already been pointed out by several authors), on the other hand, the band theory supplies good results. The attempt is now made to explain why this is the case. For this purpose, the Brueckner model operator, which combines the wave function of the real particle system with the wave function of the conception of the model of the system, is used; in the following case:  $\Psi = \bar{F}\phi$ . Here, the model operator  $\bar{F}$  is selected in such a manner that the wave function  $\phi$  becomes more simple. The transition from (1) to (2) is due to this introduction: By substituting  $\Psi = \bar{F}\phi$  in (1), and multiplying by  $\bar{F}^{-1}$ , one obtains:

$$\bar{F}^{-1} \left( \sum_{i=1}^N \frac{P_i^2}{2m} + \sum_{i=1}^N V_i + \sum_{i>j=1}^N v_{ij} \right) \bar{F}\phi = E\phi. \quad (4)$$

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By introducing  $\pi_i = \vec{P}_i^2 \vec{F} - \vec{F} \vec{P}_i^2$ ,  $\chi_i = V_i \vec{F} - \vec{F} V_i$ ,  $\eta_{ij} = v_{ij} \vec{F} - \vec{F} v_{ij}$ ,  
(4) goes over into

$$\left( \sum_{i=1}^N \frac{\vec{P}_i^2}{2m} + \sum_{i=1}^N V_i + \sum_{i>j=1}^N u_{ij} \right) \Phi = E \Phi, \quad (5)$$

где

$$u_{ij} = v_{ij} + \vec{F}^{-1} \left[ \frac{2}{N-1} \left( \frac{\pi i}{2m} + \chi_i \right) + \eta_{ij} \right]. \quad (6)$$

Herefrom it may be seen that the model operator connects not only the wave function of the real system with the wave function of the model system, but also the actual interaction with the interaction in the model system.  $u_{ij}$  may be represented by  $u_{ij} = v_{ij} \cdot (1 + \vec{F}_1)^{-1}$ , where  $\vec{F}_1$  is an operator, which takes the deviation of the interaction in the model system from the actual one into account. The latter relation may also

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Proof of the band theory

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be given in the form  $v_{ij} = u_{ij}(1 + \vec{F}_1)^{-1}$ . Substituted into (1), this gives

$$\sum_{i>j=1}^N u_{ij}(1 + \vec{F}_1)^{-1} \Psi = \left( E - \sum_{i=1}^N \frac{P_i^2}{2m} - \sum_{i=1}^N V_i \right) \Psi. \quad (8)$$

If the model operator is selected in such a manner that  $\vec{F} = 1 + \vec{F}_1$ , one obtains

$$\left( \sum_{i=1}^N \frac{P_i^2}{2m} + \sum_{i=1}^N V_i + \sum_{i>j=1}^N u_{ij} \right) \Phi = E\Phi + \left( E - \sum_{i=1}^N \frac{P_i^2}{2m} - \sum_{i=1}^N V_i \right) \vec{F}_1 \Phi. \quad (10)$$

and if the function  $\vec{F}_1 \Phi$  is the solution of the equation (11):

$$\left( \sum_{i=1}^N \frac{\vec{P}_i^2}{2m} + \sum_{i=1}^N V_i \right) \vec{F}_1 \Phi = E \vec{F}_1 \Phi, \quad (10) \text{ coincides with (2). Herefrom}$$

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Proof of the band theory

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it may be seen that  $\vec{F}_1 \Phi$  is a determinant, which is composed from the single-electron wave functions  $\varphi_i$  ( $\vec{F}_1 \Phi = \det \varphi_i$ ), where the energy spectrum of each electron agrees with the spectrum resulting from the band theory, so that (11) is equivalent to the system of equations  $(\vec{P}_i^2/2m + V_i)\varphi_i = E_i \varphi_i$ , ( $i = 1, 2, \dots, N$ ). The energy of the system is composed from the energies of the individual electrons:

$E = \sum_{i=1}^N E_i$ . Thus,  $\Psi = \det \varphi_i + \vec{F}^{-1} \det \varphi_i$  is obtained as wave

function of the real system, i.e. one obtains a certain addition to the totality of the single electron states. In the general case, no degeneration occurs. There is 1 non-Soviet-bloc reference. 4

ASSOCIATION: Voronezhskiy gosudarstvennyy universitet (Voronezh State University)

Card 5/6

KOPYTINA, M.V.; VARFOLOMEYEV, V.M.

Application of the statistic method of the many-particle theory  
for the calculation of  $\text{CH}_4$  molecule. Zhur. strukt. khim. 5  
no. 1:604-607 Ag '64. (MIRA 18:3)

1. Voronezhskiy gosudarstvennyy universitet.

KOPYTINA, V. V.

Distr: hEhJ/4E2c

✓ An optical study of the polymorphic modifications of man-  
ganous sulfide S. S. Butanov and V. V. Kopytina (State  
Univ., Moscow). *Vestnik Mosk. Univ. Ser. Mat. i  
Mekh., Astron., Fiz., Khim.* No. 3, 22: 26, 1957. — The  
rose (γ) modification (I) of MnS was pptd. by mixing bin-  
SO<sub>4</sub> and Na<sub>2</sub>S solns., the green (α) modification (II) by heat-  
ing I in an inert atm.;  $d_{10}^{\circ}$ : I 3.15, II 3.53. Curves of light  
transmittance and absorption coeff. vs. wave length (2-  
15.5 μ) show a max. transmittance for I at 12-14 μ, for II at  
14.5; the minima were 2 and 5.6. The  $n_s$  and coordination  
nos. of I and II are, resp.: 2.0, 4; 2.3, 6. Tables of their  
interplanar distances and of properties of other polymorphic  
comps. are given. Malcolm Anderson

4  
2

1/1

*Chair of Crystallography +  
Crystallochemistry*

KOPYTINA, Ye.I.

Generalized candidomycosis in a 9-month-old child caused by antibiotics. *Pediatrics* 39 no.3:78-80 My-Je '56. (MIRA 9:9)

1. Iz kafedry pediatrii (zav. G.N.Speranskiy) TSIU na baze detskoy bol'nitsy imeni Dzerzhinskogo (glavnyy vrach Ye.G.Krayeva)

(ANTIBIOTICS, inj. eff.

moniliasis in child)

(MONILIASIS, etiol. and pathogen.

antibiotics in child)

KOPYTINA, Ye.I.

Candidamycosis in a nine-month-old child in connection with the  
use of antibiotics. Nauch. rab. asp. i klin. ord. no.6:71-73 '60.  
(MIRA 14:12)

1. Kafedra pediatrii (zav. deystvitel'nyy chlen AMN SSSR prof. G.N.  
Speranskiy) Tsentral'nogo instituta usovershenstvovaniya vrachey.  
(ANTIBIOTICS) (MONILIASIS)



AZIN, L.A., kand. tekhn. nauk; KOPYT'KO, F.Ye.; DOBRYNIN, L.Ye.

Harvesting grain by separate stages in Sverdlovsk Province. Zemle-  
delie 6 no.6:5-10 Je '58. (MIRA 11:6)  
(Sverdlovsk Province--Grain--Harvesting)

YASOV, V.G.; VOLOKITENKOV, A.A.; KOPYTKO, Yu. , red.; IVANOVA,  
A.G., tekhn. red.

[Controlling lost circulation in prospecting drilling]  
Bor'ba s pogloshcheniem promyvochnoi zhidkosti pri bure-  
nii razvedochnykh skvazhin. Moskva, M-vo geologii i okh-  
rany neдр SSSR, 1962. 51 p. (MIRA 17:4)

KOPYTKO, Yu.N.

Possibilities of developing auger and vibro-auger boring. Trudy  
MGRI 30:92-101 '56.

(MLRA 9:11)

(Boring)

*Устройство бурения*

KOPYTKO, Yu.N., red.; GUSEV, S.P., red.izd-va; PEN'KOVA, S.A., tekhn.red.

[Drilling auger holes; drilling practices under various geological conditions] Shnekovoe burenie; iz opyta prokhodki skvazhin v razlichnykh geologicheskikh usloviakh. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po geol. i okhrane neдр, 1960. 106 p.

(MIRA 14:4)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Otdel nauchno-tekhnicheskoy informatsii.  
(Boring)

KOPTKOVA, O.G.

Cobalt and nickel concentration in the colostrum, transitional and  
ripe human milk during individual months of lactation. Vestsi AN  
BSSR.Ser.bial.nav. no.4:142-144 '59. (MIRA 13:4)  
(MILK, HUMAN) (COBALT IN THE BODY) (NICKEL IN THE BODY)

KOFYTKOVA, O. I.

42675. KOFYTKOVA, O. I. Lecheniye Alimentarno--Toksicheskoy Aleyki  
(Septicheskaya Angina). Zdravookhraneniye Kazakhstana, 1948, No 7, s. 48-51.

So: Letopis' Zhurnal'nykh Statey, Vol. 7, 1949

KOPYTKOVA, O.I.

Kopytkova, O.I. "Pathological changes in the upper respiratory tract and in the organs of hearing in alimentarytoxic aleukia", Zdravookhraneniye Kazakhstana, 1948, No. 8, p. 19-23.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 9, 1949)

KOPYTKOVA-BOGDANOVICH, O. G., Cand Med Sci -- (diss) "Cobalt and nickel content in the colostrum, transitory and matured thoracic milk during periods of lactation." Smolensk, 1960. 22 pp; (Ministry of Public Health RSFSR, Smolensk State Medical Inst); 200 copies; price not given; (KL, 52-60, 122)



Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4,  
p 150 (USSR) 15-57-4-5130

AUTHOR: Kopytov, A.

TITLE: Volumetric Calculation of Petroleum Reserves (Formuly  
dlya podscheta zapasov nefti ob'yemnym metodom)

PERIODICAL: Novosti nef. tekhniki. Neftepromysl. delo, 1955,  
Nr 12, pp 6-8

ABSTRACT: Petroleum reserves containing dissolved gas may be  
calculated in the strata by means of the formula  
 $Q_{ob} = F \cdot h \cdot m \cdot \phi \cdot \gamma_{pl}$  Subsurface reserves of  
petroleum, representing total reserves in terms of  
surface conditions may be calculated with the help of  
the formula:  $Q_g = F \cdot h \cdot m \cdot \phi \cdot \gamma_{pl} \cdot 1/1.8$ . Non-  
recoverable reserves of petroleum, representing the  
difference between subsurface geological and economi-  
cally recoverable reserves, may be determined

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Volumetric Calculation of Petroleum Reserves (Cont.) 15-57-4-5130

according to the formula:  $Q_3 = F \cdot m \cdot h \cdot \phi \cdot \gamma_{pl} (1-k) 1/1 + \delta$ ,  
where F is the petroleum-bearing area in square meters; h is the  
effective thickness of the stratum in meters;  $\phi$  is the coefficient  
of saturation of the stratum with petroleum; m is the coefficient  
of porosity of the petroleum-containing rocks; k is the coefficient  
of yield;  $\gamma_{pl}$  is the density of the petroleum in the stratum;  $\delta$   
is the gas weight factor (in T/T) determined according to the  
formula  $\delta = G \cdot \gamma_v \cdot \gamma_g / 1000$ , where G is the gas factor (cu m/T)  
at atmospheric pressure;  $\gamma_v$  is the density of the air under standard  
conditions;  $\gamma_g$  is the ratio of the density of the gas to the  
density of the air, taken as a unit.

Card 2/2

I. V. V.

KOPYTOV, A.V.

Development of the Mancharovskoye field. Geol.nefti 2 no.3:  
14-17 Mr '58. (MIRA 12:6)

1. Ufimskiy neftyanoy nauchno-issledovatel'skiy institut.  
(Bashkiria--Oil fields--Production methods)

KOPYTOV, A.V., Cand Geol-Min Sci — (diss) " <sup>Determination</sup> ~~calculation~~ of petro-  
<sup>(of petroleum)</sup> ~~leum~~ reserves and gas dissolved in ~~them~~ <sup>it</sup> ~~with the calculation~~ <sup>taking into account</sup>

~~new~~ new data on the basis of the parameters of the layer and petro-  
leum on the example of Bashkirian deposits." Ufa, 1959. 15 pp

(Kuybyshev Inst im V.V. Kuybyshev. Ufa Petroleum Scientific Re-  
<sup>(UENIL)</sup> search Inst), 120 copies (Kt, 29-59, 126)

-13 -

KOPYTOV, A.V.; BELOV, A.V.

New large objectives of the development of Bashkir oil pools. Geol.  
nefti i gaza 4 no.10:18-23 O '60. (MIRA 13:9)

1. Ufimskiy neftyanoy nauchno-issledovatel'skiy institut.  
(Bashkiria--Petroleum geology)

KOPYTOV, A.V.

Using the volumetric method for evaluating oil and gas reserves  
in reef massifs. Razved. i okh. nedr. 27 no.4:15-18 Ap.'61.  
(MIRA 14:5)

1. Ufimskiy neftyanoy nauchno-issledovatel'skiy institut.  
(Bashkiria--Oil sands--Permeability)

KOPYTOV, A.V.; SKRIPNIK, V.A.

Exploitation of gas condensate fields in Bashkiria. Nefteprom.  
delo no.3:13-16 '63. (MIRA 16:9)

1. Ufimskiy neftyanoy nauchno-issledovatel'skiy institut.

KOPYTOV, D.P., inzh.; SHCHAPKOV, B.K., inzh.

Construction of a 25 km. long heating pipeline between Sverdlovsk  
and Energ. stroi. no.32:15-22 '62. (MIRA 16:5)

1. Trest "Uralenergomontazh".

KOPYTOV, D.P., inzhener.

~~Device for measuring the inner diameter of pipes and drum holes.~~  
Elek. sta. 26 no.1:49 Ja '55. (MIRA 8:3)  
(Steam boilers) (Gauges)



КОПЫТОВ, Ф.

1146\* (Rapid Heating of Steel in Automatic Gas Furnaces.)  
Skorostnoi nagrev stali v gazovykh pechakhavtomatakh. V.  
F. Kopytov. Vestnik Mashinostroeniia, v. 34, no. 8, Aug. 1954,  
p. 30-31.

Describes furnace types, comparing advantages. Uses include  
heating and feeding blanks into presses. Diagrams, graph. 1 ref.

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ACCESSION NR: AT4037673

S/2981/64/000/003/0349/0362

AUTHOR: Zakharov, Ye. D.; Zakharov, V. Z.; Kopy\*tov, G. A.; Chekanov, A. N.

TITLE: Causes of hot cracking in continuously cast ingots of high strength alloys

SOURCE: Alyuminiyevy\*ye splavy\*, no. 3, 1964. Deformiruyemy\*ye splavy\* (Malleable alloys), 349-362

TOPIC TAGS: aluminum alloy, alloy V95, continuously cast ingot, alloy hot cracking, effective crystallization range, ingot cooling, ingot temperature distribution, transition zone width, casting parameter selection, mold height selection, charging hopper width, continuous casting, aluminum alloy casting, alloy crystallization, mold diameter selection

ABSTRACT: The study concerned the selection of optimal conditions for continuous casting of ingots with diameters of 500-520 mm from technically pure alloy V95 (1.66% Cu, 2.13% Mg, 5.8% Zn, 0.42% Mn, 0.14% Cr, 0.18% Si), in order to counteract the alloy's tendency to hot cracking. Three casting variants involved mold diameters of 520 (I), 500 (II) and 520 (III) mm, respectively, mold heights of 200, 400 and 400 mm, hopper diameters of 130, 130 and 320 (circular)mm, casting rates of 18, 25 and 20 mm/min, water pressures of 0.2, 0.5 and 0.5 atm. and a melt temperature of 690C for all variants. Width of the transition zones and ingot temperature distributions were analyzed in terms of cooling curves

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ACCESSION NR: AT4037673

obtained from three thermocouples inserted at the periphery, in the center and at a half-radius point. Consideration was given to the shape of ingot crescents. It was concluded that hot cracking is due to tensile stresses present in the ingot over the effective crystallization range (570-470C in this case), hence minimal width of the transition zone (variant I) throughout the ingot is desirable. The tendency to hot cracking was very slight where this width decreased from the center to the periphery. Variant III provided conditions for the development of intercrystalline cracks in the half-radius zone, while variant II resulted in development of surface cracks and deterioration of mechanical properties. Orig. art. has: 9 graphs and 2 tables.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 04Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card 2/2

SOV/137-59-4-8169

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 120 (USSR)

AUTHOR: Kopytov, G.T.

TITLE: Welding With Fusing Electrode in Carbon Dioxide

PERIODICAL: Sb. statey. Ural'skiy z-d tyazh. mashinostroyeniya im. S. Ordzhonikidze, 1958, Nr 6, pp 71 - 86

ABSTRACT: The author analyzes the basic features of arc welding with fusing electrode in CO<sub>2</sub>. Main advantages and deficiencies of the method are mentioned and suitable fields of its practical application are enumerated. Brief information is given on measures to be taken in order to modernize the PDSH-500 M semi-automatic machine, so that its successful use for welding in CO<sub>2</sub> can be ensured. The author enumerates some requirements to materials to be used if the described welding method is applied. He also mentions approximate conditions for welding up defects in steel castings and for welding metal structures up to 30 mm thickness. Basic technological recommendations are given as to the practical application

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Welding With Fusing Electrode in Carbon Dioxide

SOV/137-59-4-8169

of the described welding method in the performance of various welding and building-up operations. Preliminary calculations show that the application of the method for welding up defects in steel castings will ensure yearly savings of about 450,000 rubles at the Uralmashzavod cleaning shop alone.

I.G.



Card 2/2

GALAKTIONOV, A.T.; DENISOV, Yu.A.; KOPYTOV, G.T.; MASLOV, Yu.A.; NIKONOV, I.P.; PETUNIN, I.V.; KOICHEVA, G.N.; KUZNETSOV, A.P.; LELEKO, N.M.; RAZIKOV, M.I.; SPESHKOV, V.V.; STEPANOV, B.V., STEPANOV, V.V.; kand. tekhn. nauk; SHELOMOV, B.Ye.; YUNISHEV, G.P.; YES'KOV, K.A., dots., retsenzent; BAKSHI, O.A., dots., retsenzent; BEREZKIN, P.N., dots., retsenzent; PATSKEVICH, I.R., dots., retsenzent; RUDAKOV, A.S., dots., retsenzent; FIZHBEYN, N.B., inzh., retsenzent; KHRUSTALEV, L.Ya., inzh., retsenzent; KRUTIKHOVSKIY, V.G., inzh., red. BOBROV, Ye.I., kand. tekhn. nauk, red. DUGINA, N.A., tekhn. red.

[Welding handbook] Spravochnik rabochego-svarshchika. Pod red. V.V.Stepanova. Moskva, gos. nauchno-tekhnizd-vo mashinostroit. lit-ry, 1960. 640 p. (MIRA 14:6)

(Welding)

USHANOV, V., kapitan 2-go ranga; KOPYTOV, I., kapitan-leytenant

Sailors are trained in naval work. Komu.Vooruzh.Sil 2  
no.6:46-49 Mr '62. (MIRA 15:3)

(Communist Youth League)  
(Russia--Navy--Education, Nonmilitary)

S/072/63/000/004/001/005  
A051/A126

AUTHORS: Kitaygorodskiy, I. I., Doctor of Technical Sciences, Professor,  
Kopytov, L. N., Engineer

TITLE: Strengthening of plate glass by etching

PERIODICAL: Steklo i keramika, no. 4, 1963, 4 -8

TEXT: A study was made of the etching-law sequence of glass under tension or non-tension. The possibilities of evaluating the microdefects according to magnitude and shape were analyzed. The causes of defect occurrence and the prevention of new damage to the etched glass were investigated. A 2 - 3 mm plate glass (72 SiO<sub>2</sub>, 15 Na<sub>2</sub>O, 8 CaO, 3.5 MgO and 1.5 Al<sub>2</sub>O<sub>3</sub>) with vertical stretch was used for the analysis. The bending strength was calculated from the formula:  $\sigma = 4.45 P/h^2$ , where P is the destructive load in kg, h - the sample thickness in mm. The centro-symmetrical strength was determined from the formula:  $\sigma = 0.824 P/h^2$ . A linear relation was derived between glass strength and etching time or thickness of the removed layer. A comparison of the obtained relation with the theoretical Griffith formula is made:  $\sigma = \sqrt{\frac{2ET}{\pi a}}$ , where E is the resili-

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Strengthening of plate glass by etching

S/072/63/000/004/001/005  
A051/A126

ence modulus, equaling  $7,000 \text{ kg/mm}^2$ ,  $T$  - the surface energy  $5 \cdot 10^{-5} \text{ kg/mm}$ ,  $c$  - crack size, equaled to the thickness of the defective layer in mm. Thus, an indirect evaluation of magnitude and shape of the surface microdefects can be made. The method of gradual etching helps to judge not only the change in the defects during the strengthening process, but also of the differences in their initial shape. It is pointed out that the removal of the damaged surface layer does not protect the glass against further damage from either mechanical, corrosive or thermal causes. It was established that the action of moisture or heating to a temperature of calcination has much less effect on the reduction in strength of the etched glass than the mechanical damage of its surface. It is further shown that the application of a fine layer of material on its surface, with the ability to reduce the surface friction coefficient, can be used as a method of etched-glass protection from mechanical damage. There are 4 figures and 1 table.

ASSOCIATION: MXTM (MKhTI) im. Mendeleyeva (Moscow Chemo-Technical Institute .  
im. Mendeleyev

Card 2/2

L 10756-63

EWP(q)/EWT(m)/BDS--AFFTC/ASD--Pg-4--WH

ACCESSION NR: AP3003427

8/0072/63/000/007/0003/0005

AUTHOR: Kopytov, L. N. (Engineer)

TITLE: The change in glass strength due to thermal treatment

SOURCE: Steklo i keramika, no. 7, 1963, 3-5

TOPIC TAGS: glass, strength, thermal treatment, annealing, surface defects, elimination of defects, quenching, softening point, microdefects

ABSTRACT: The change in the strength and character of defects as a result of heat treatment of vertically drawn sheet glass with surface defects of varying size and strength ranging from 3.9 to 44 kg/mm<sup>2</sup> were studied. Heat treatment of sheet glass was carried out in a low-temperature region extending up to 550C, where viscoplastic deformation is restricted, and in a high-temperature region close to the softening point. In each region the maximum temperature reached and its rate of change were recorded. Treatment of the glass up to 550C and its subsequent cooling at the rate of 1 or 3 deg/min did not substantially affect strength and was defined as annealing. A polarization study revealed that annealing leaves no residual stresses but can remove high stresses due to quenching. It was concluded that annealing does not change the existing surface

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L 10756-63

ACCESSION NR: AP3003427

2

microdefects of the glass. Prolonged heating (12 hr) at 550C did not affect the strength of glass with large defects. A more substantial change in the character of the surface defects is observed in heat treatment by a two-step process consisting in 1) heating rapidly to a high temperature (near the softening point) followed by rapid cooling and 2) annealing. The high-temperature treatment (1) consisted in a) heating to the softening point and cooling in air, b) heating to the softening point and quenching in organosilicon oil No. 5, or c) heating to a lower maximum temperature and quenching in organosilicon oil No. 5. From the results of this treatment it was concluded that prolonged treatment at the softening point aids in eliminating existing defects and that rapid cooling from the softening point causes dangerous microdefects. Orig. has: 4 figures.

ASSOCIATION: Moskovskiy Khimiko-tekhnologicheskii institut imeni Mendeleeva  
(Moscow Institute of Chemical Technology)

SUBMITTED: 00

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 005

OTHER: 000

✓ 11/93  
Card 2/2

KOPYTOV, L. N., inzh.

Lowering the strength of glass by mechanically damaging its surface. Stek. i ker. 20 no.3:8-10 Mr '63. (MIRA 16:4)

1. Moskovskiy Ordena Lenina khimiko-tekhnologicheskoy insti-  
tut im. Mandeleeva.

(Glass—Testing)

KOPYTOV, L.N., inzh.

Measuring the brittleness of glass. Stek. 1 ker. 20 no.8:  
8-10 Ag '63. (MIRA 16:11)

1. Moskovskiy khimiko-tehnologicheskoy institut imeni  
D.I. Mendeleyeva.

KITAYGORODSKIY, I.I.; KOPYLOV, L.N.

Effect of the medium on the formation and development of surface microcracks in strained glass. Dokl.AN SSSR 149 no.3:580-582 (MIRA 16:4)  
Mr '63.

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I. Mendeleeva. Predstavleno akademikom P.A.Rebinderom.  
(Glass) (Surface tension)

L 5227-66 EWP(e)/EWT(m)/EWP(w)/EPF(c)/EWP(i)/EWP(j)/T/EWP(t)/EWP(b)

ACC NR: AP5026040 JD/DJ/RM/WH

SOURCE CODE: UR/0072/65/000/009/0024/0025

AUTHOR: Kopytov, L. N. (Candidate of technical sciences)

ORG: Moscow Machine Tool and Instrument Institute (Moskovskiy stanko-instrumental'nyy institut)

TITLE: Reducing the coefficient of boundary friction in order to protect glass from the formation of dangerous surface defects

SOURCE: Steklo i keramika, no. 9, 1965, 24-25

TOPIC TAGS: friction coefficient, glass property, sheet glass

ABSTRACT: An effective means of preventing the formation of scratches on glass is to reduce the friction coefficient with a lubricant. The friction coefficient of sheet glass treated with various chemical substances was measured. It was found that at high localized loads, the friction coefficient on a freshly formed glass surface (etched with hydrofluoric acid) is relatively high (no less than 0.55). "Dry" boundary friction, i.e., friction in which the two solid surfaces are separated by an extremely thin layer of the lubricant (which acts as a "dry" lubricant) can reduce the friction coefficient to 0.1, and thus protect the glass from the formation of dangerous surface defects. Best results were obtained with polysiloxane liquid No. 5 and glycerides of fatty acids (vegetable oils). Orig. art. has: 1 table.

SUB CODE: MT / SUBM DATE: 00 / ORIG REF: 003 / OTH REF: 000

Card 1/1

UDC: 666.11.01

0901/1372

L 42284-66 EWP(e)/EWT(m)/T DJ/WH

ACC NR: AP6020920

SOURCE CODE: UR/0369/66/002/002/0224/0226

AUTHOR: Kopytov, L. N.

ORG: Moscow Machine-Instruments Institute (Moskovskiy stankoinstrumental'nyy institut)

TITLE: Investigation of boundary friction under conditions leading to the formation of dangerous surface defects on glass

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 2, 1966, 224-226

TOPIC TAGS: glass, friction, friction coefficient, surface active coating, ORGANOSILICON COMPOUND

ABSTRACT: The effect of etching with HF and of the surface coatings on the strength of glass subjected to localized high specific loads was investigated. The following coatings were tested: dimethyldichlorosilane, diethyldichlorosilane, organosilicon liquids: GKZh-94, No. 2, No. 3, and No. 4 (K. A. Andrianov. Kremniyorganicheskiye soedineniya, Goskhimizdat, 1955), vaseline oil, paraffin (aqueous emulsion), olive oil, and castor oil. The experimental procedure is described by I. I. Kitaygorodskiy and L. N. Kopytov (Steklo i keramika, 1963, No. 4). The friction coefficient was calculated after L. N. Kopytov (ZL, 1964, No. 2). The experimental results are tabulated. It was found that, with the exception of the organosilicon liquids GKZh-94, the effect of all coatings was similar. The organosilicon liquid coatings

Card: 1/2



LYAPUNOV, Boris Valerianovich, inzhener; KOPYTOV, M.I., redaktor; KADER, Ya.M., redaktor izdatel'stva; MYASHIKOVA, T.F., tekhnicheskiy redaktor

[Guided missiles] Upravlyaemye snaryady. Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1956. 136 p. (MLWA 10:3)  
(Guided missiles)

LYAPUNOV, Boris Valer'yanovich, inzh.; KOPYTOV, M.I., kand.tekhn.nauk,  
inzh.-polkovnik, red.; KADER, Ya.M., red.izd-va; KRASAVINA,  
A.M., tekhn.red.

[Rocket] Raketa. Izd.2., perer. Moskva, Voen.izd-vo M-va  
obor.SSSR, 1960. 233 p. (MIRA 13:5)  
(Rockets (Aeronautics))

BELOV, N.N.; BOL'SHAM, Ya.M.; GORDEYEV, A.N.; GRACHEV, V.A.; YERMILOV, A.A.;  
ZALESSKIY, A.M.; KIZEVETTER, Ye.N.; KNORRING, G.M.; KONSTANTINOV,  
B.A.; KOPYTOV, N.Y.; LEVIT, G.O.; MILLER, G.P.; MAYFEL'D, M.P.;  
PRINTSEV, A.A.; SERBINOVSKIY, G.V.; SOKOLOV, B.A.; STASILOYTS, A.B.;  
TAYTS, A.A.; KHRAMUSHIN, A.M.

Mikhail Konstantinovich Kharchev; obituary. Belov and others. Prom.  
energ. 12 no.12:33 D '57. (MIRA 10:12)  
(Kharchev, Mikhail Konstantinovich, 1896-1957)

BORZUNOV, I.G.; SHELLOVA, N.A.; KOBYTOV, R.F.

Redesigning the draw box of a high-draft slubber for two-zone high drafting. Izv.vys.ucheb.zav.; tekhn.tekhn.prom. no.6:88-91 '60.  
(MIRA 14:1)

1. Moskovskiy tekstil'nyy institut.  
(Spinning machinery)

KOPYTOV, R.F.

Manufacture of yarn from a mixture of cotton and spun rayon fibers.  
Tekst.prom. 22 no.1:41-43 Ja '62. (MIRA 15:2)

1. Zamestitel' glavnogo inzh. khlopkopryadil'noy ordena Trudovogo  
Krasnogo Znameni fabriki "Krasnaya Polyana" Moskovskogo oblastnogo  
sovnarkhoza.

(Yarn)

ACC NR: AP6025685 (A) SOURCE CODE: UR/0413/66/000/013/0151/0151

INVENTOR: Fridman, Yu. A.; Kopytov, S. A.

ORG: None

TITLE: A method for finishing convex developable surfaces. Class 67, No. 183619

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 151

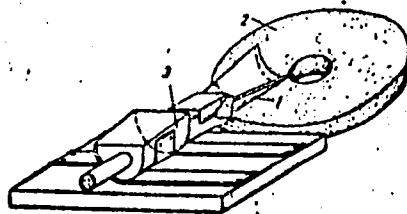
TOPIC TAGS: surface finishing, turbine blade

ABSTRACT: This Author's Certificate introduces a method for finishing convex developable surfaces such as the back sides of turbine blades. The method consists of using the end surface of a rotating tool as a plane which determines the envelope of the surface to be finished, while the necessary motion of the workpiece is provided by a three-dimensional master form connected to a flat plate by bands stretched in opposite directions. The master form rolls along this plate without sliding. Constant linear contact of the workpiece with the end surface of the tool is achieved by making the master form a convex developable surface proportionally equivalent to the machined surface.

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UDC: 621.923.1

ACC NR: AP6025685



1—workpiece; 2—end surface of  
the tool; 3—master form

SUB CODE: 13/ SUBM DATE: 07May62

Card 2/2

KOPYTOV, S.A.

SNURNIKOV, Aleksandr Petrovich; PAKHOMOVA, G.N., kandidat tekhnicheskikh nauk, retsenzent; PEYSAKHOV, I.L., kandidat tekhnicheskikh nauk, retsenzent; KOPYTOV, S.A., inzhener, retsenzent; LAKERNIK, M.M., redaktor; ARKHANGEL'SKAYA, M.S., redaktor; VAYNSHTEYN, Ye.B., tekhnicheskii redaktor.

[Hydrometallurgy of zinc] Gidrometallurgiya tsinka. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po cherno i tsvetnoi metallurgii, 1954. 255 p. [Microfilm] (MIRA 8:2)  
(Zinc--Metallurgy)



ACCESSION NR: AP4039009

8/0136/64/000/005/0086/0088

AUTHOR: Volkovich, A. V.; Komlev, G. A.; Vasyukova, A. A.; Kopy\*tov, S. A.

TITLE: Cadmium Refining by Vacuum Distillation

SOURCE: Tsvetny\*ye metally\*, no. 5, 1964, 86-88

TOPIC TAGS: cadmium, refining, extraction, vacuum distillation, impurity, cadmium refining

ABSTRACT: This study relates to cadmium refining by vacuum distillation. Good experimental results obtained by the authors in continuous vacuum distillation of Cd accounted for the construction of a pilot plant at the Chelyabinsk Zinc Plant. The temperatures of the evaporator unit and of the feed tube are 430-460 C, condenser and outflow tube temperatures are 335-350 C, and residual gas pressure is 0.5 to 1 mm Hg. The chemical composition of Cd was (%): 0.0027-0.0036 Ni; 0.002 Zn; 0.005 Ti; 0.02 Pb; 0.004-0.0074 Cu; 0.0004 Fe. Cd extraction amounted to 95-98%. The distillation of secondary sponge with a 60-62% Cd content was carried out by compressing the specimens until moisture content was 5 to 7% and preheating them to 70-80 C. The impurities in the molten metal were (in%):

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ACCESSION NR: AP4039009

0.3-0.32 Ni; 0.002 Zn; 0.017-0.02 Ti; 0.08-0.1 Pb; 0.6-0.7 Cu; 0.014-0.017 Fe.  
The metal met the State Standards for "KD-0" type Cd. The extraction of Cd from  
the compact at major plants using a combined method of production varies between  
70 and 77% as against 89% obtained by direct extraction from the compact.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 04Jun64

ENCL: 00

SUB CODE: GC, MM

NO REF SOV: 009

OTHER: 003

Card 2/2

SALIN, A.A.; VOLKOVA, V.S.; TOKAYEV, Yu.N.; TULENKOV, I.P.; KOPYTOV,  
S.A.; GUZAIROV, R.S.

Electrodeposition of zinc with high electrolyte temperatures.  
TSvet.met. 35 no.12:13-18 9 '62. (MIRA 16:12)

(Zinc—Electrometallurgy)  
(Metals, Effect of temperature on)

KOPYTOV, V.; MOLCHANOV, V.

If obstacles are removed. Sov.profsoiuzy 18 no.23:5-7 D '62.

(MIRA 15:12)

1. Predsedatel' mestnogo komiteta professional'nogo soyuza zheleznodorozhnoy stantsii Novorossiysk (for Kopytov).
2. Zamestitel' predsedatelya portovogo komiteta professional'nogo soyuza Novorossiyskogo porta (for Molchanov).

(Novorossiysk—Cargo handling) (Trade unions)